DOCUMENT RESUME

ED 079 324 TM 002 922

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TITLE Factor Analysis of an Instructor Rating Scale.
PUB DATE 27 Feb 73
NOTE 25p.; Paper presented at Annual Meeting of American Educational Research Association (New Orleans, Louisiana, February 25-March 1, 1973)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS College Teachers; *Factor Analysis; *Measurement Instruments; *Rating Scales; Speeches; Student Attitudes; Tables (Data); *Teacher Evaluation; Teacher Role
IDENTIFIERS *Course Instructor Evaluation Form

ABSTRACT

Factor analysis of teacher rating scales has often identified components which focus on the instructor's respective roles as actor and interactor. A total of 208 Purdue University instructors were rated by their students on the Course-Instructor Evaluation form in an attempt to: (1) determine the relationships between specific and global items, and (2) determine the factor structure of the scale with and without the global items (the overall course and overall instructor ratings). The results showed lack of independence between specific and global ratings, and three relatively independent dimensions, actor, interactor, and text-test as factors. (Author)

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Factor Analysis of an Instructor Rating Scale*

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What are the significant dimensions or perceptual variables which students use in evaluating courses and instructors? More than 20 years ago, Creager (1950) phrased the question thus: "How do students structure their perceptions of their instructors?" Today we are still confronted with the same question. A definite answer has not been found.

Many researchers and users of course and instructor rating scales suspect that the halo effect is a prominent influence. The halo effect is usually construed to be the result of certain perceptual and attitudinal processes whereby a few cues are generalized into a global impression. This impression tends to be preserved and subsequent perception of the stimulus object or person becomes selective, with a concomitant loss of discrimination.

The extent to which the instructors' trait ratings are intercorrelated is sometimes taken as evidence of the amount of halo present. But it must be recognized that halo so defined includes perceptions of objectively intercorrelated traits (Remmers and Stalnaker, 1928). The objective intercorrelations

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*A paper presented at the session on Student Ratings of Instruction, Annual Meeting of the American Educational Research Association, New Orleans, Louisiana, February 27, 1973.

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would be the true relationships between the traits: i.e., those existing if there were no halo effect. From the standpoint of reliability and validity of the ratings on a single trait, the question of halo is irrelevant. But if discrimination among the traits is lost, the rating scale loses its usefulness.

Another possible measure of halo is the correlation between a specific trait rating and the global impression -- the overall instructor rating. But this definition of halo encompasses the process of impression formation itself, since there is evidence that person perception is the result of averaging the stimulus component values (Anderson & Jacobson, 1965).

About ten years ago, two studies of the halo effect arrived at directly opposing conclusions. Royce (1960) suggested that high ratings of the instructor are largely due to a halo effect that he called "superficial popularity", while Weaver (1960) concluded that student ratings are <u>not</u> a product of a popularity halo.

Hoyt (1969) later found a halo effect in students' ratings of a <u>course</u>. He stated that "If a class was generally pleasing to a student, he was likely to give it positive ratings on all characteristics; the reverse can be expected for classes in which the student was generally dissatisfied. This 'halo effect' interferes with the student's ability to discriminate among the various characteristics of the course (p. 13)."

This suggests another line of questioning. Is there a difference between rating an instructor and rating a course? Flesher (1952) found that course ratings tend to be lower and more variable than instructor ratings. McKeachie (1969) cites this finding as support for his statement that course ratings are more valid than instructor ratings. Many instruments seem to combine the two kinds of rating on a single scale. Is this amalgamation arbitrary or is it unavoidable? If course and instructor ratings are separable, factor analysis of the common scale would appear to be a sensible method for breaking the bonds and revealing the structural relationship.

When rating instruments are factor-analyzed and interpreted in terms of the instructor, his functions can be explained via the respective roles of actor, interactor, and director. These roles are associated respectively with the teaching tasks of presentation, facilitation, and regulation. It could be argued that the instructor's role of director is course-specific and therefore not to be viewed in terms of traits of the instructor, but rather in terms of characteristics of the course.

A representative sample of 22 studies completed over the last 30 years which investigated the factor structure of course-instructor evaluation instruments was reviewed and classified into the instructor-role framework shown in Table 1. In every study, the first factor extracted fell into either the Actor category or the Interactor category. Some studies yielded no

factor which seemed to fit into the Director category, but all studies produced at least one factor apiece for the Actor and Interactor categories. The factors obtained by the investigators conducting each study depend, of course, upon the substance of the rating sclae items used. Therefore it was more appropriate to base the assignment of a particular factor to a role-category upon the content of the items constituting the factor than upon the label attached to the factor by the investigator. Using as an example the study by Deshpande, Webb, and Marks (1970), Table 2 shows the highest-loading items of the first three factors reported for their Teacher Description Instrument. Consideration of the content of the items led us to assign the factors labelled Motivation, Rapport, and Structure to the respective role-categories of Actor, Interactor, and Director.

The purpose of the present study is threefold: (1) to determine the factor structure of a recently-developed course and instructor evaluation instrument which has been widely used at a large university, (2) to ascertain the separability of the appraisal of the course from that of the instructor, (3) to analyze the relationships among specific rating items and between specific items and global items, in order to assess possible halo effect evoked by the instrument. The ultimate goal is to judge the possible effectiveness of a particular instrument in diagnosing the strengths and weaknesses of teachers and teaching.

Method

Subjects

A total of 206 Purdue University professors participated in the study. All academic areas were represented in the sample. The courses were evenly divided into freshman, sophomore, junior, and senior levels.

Instrument

The Course-Instructor Evaluation (CIE) form was developed in 1967 through the joint effort of a student organization called The Course and Instructor Evaluation Foundation (1970) and faculty and staff members of the Purdue Measurement and Research Center. The instrument is administered annually to those classes whose instructors have given permission for the evaluation. The results are published in a book sold to students as an aid to course selection, and detailed feedback is given to each participating instructor with the aim of improved teaching.

The CIE lists 18 aspects of the course and instructor and asks the student to indicate his evaluations on a five-point scale progressing from unsatisfactory (2 points), poor (3 points), adequate (4 points), good (5 points), to excellent (6 points).

The 18 items are summarized as follows: (1) textbooks and printed materials, (2) clarity of instructor's policies, (3) organization of course content, (4) instructor's presentation of course material, (5) students' opportunity to question in class, (6) instructor's command of subject material, (7) instructor's ability to answer impromptu questions, (8) instructor's adaptation

of teaching methods to students' learning difficulties, (9) instructor's rapport with students, (10) class discussions, (11) instructor's ability to apply course material to real situations, (12) instructor's willingness to help outside of class, (13) instructor's grading system, (14) effectiveness of lecturer, (15) degree of intellectual stimulation, (16) straightforwardness of exams. (17) overall course, and (18) overall instructor.

The CIR was evaluated by Van Horn (1968) who concluded that it is a reliable and valid rating instrument.

Treatment of Data

Means, standard deviations, and product-moment correlations were calculated for all 18 item scores, using the instructor's within-class mean as the measurement unit for each item. Using unities in the main diagonal of the intercorrelation matrix, the data were factor-analyzed by the principal axis method. Successive orthogonal rotations using the normal varimax criterion were performed until it was apparent that, upon further rotation, a specific item would be isolated as a factor (as per Nunnally, 1967, p. 360). The disregard for the usual rotation criterion of a factor eigenvalue greater than unity is supported by the research of Carver and Liberty (1973).

Results

Table 3 displays the item score means which range from 4.21 (Text) to 5.27 (Command of Material) and exhibits the item score standard deviations which range from .46 (Command of Material, Grading) to .72 (Lectures). The ceiling rating of 6 has the general effect of causing negative skew in the item score distributions. The present data show no significant difference between the item variances for Overall Course and Overall Instructor ($F(207, 207) = 1.18$, $p > .05$). There is a significant difference between these two item means ($t(207) = 5.38$, $p < .001$), with the instructor rated higher than the course.

Inspection of the intercorrelation matrix presented in Table 4 reveals fairly high correlations among all items except Text and Exams. The high correlation (.88) between Overall Course rating and Overall Instructor rating indicates a high degree of perceived relationship between these global judgments. The almost uniformly high correlations between the global and specific items brings into question the diagnostic value of the specific items.

The results of the factor analysis, presented in Table 5, show the factor loadings of the principal components having eigenvalues greater than 0.5. The analysis based on <u>all</u> items (the data <u>without</u> parentheses) reveals that except for Text, which has its largest loading on Component 3 as (indicated as boxed), all items have their largest loading on Component 1. This suggests that at least three rotated factors are required to meet our criterion of optimal rotation.

The factor loadings of two rotated factors are shown in Table 6. The analysis based on all items reveals that Chance to Question, Rapport, Discussions, Applications, Outside Help, Grading, and Exams each have their largest loading on Factor 2 (each indicated as boxed), while the remaining items each have their largest loading on Factor 1. Factor 2 seems to fit the Interactor category.

Table 7 presents the factor loadings of three rotated factors. The analysis based on all items indicates that Text and Exams now have their largest loadings on Factor 3 (each indicated as boxed as are the items with the largest loading on Factor 2). Factors 1 and 2 have the same general loading pattern (except for Text and Exams) as for the solution using two rotated factors. Factor 3 roughly corresponds to the Director category since the choice of textual material and the construction of exams are managerial functions.

When four factors are rotated, the factor loadings appear as in Table 8. The analysis based on all items finds each item's largest loading (each indicated as boxed except for those loading highest on Factor 1) as follows: Exams on Factor 4; Text on Factor 3; Chance to Question, Rapport, Discussions, Applications, and Outside Help on Factor 2; and the remaining items on Factor 1. The condition of single items loading heaviest on individual factors has been met, therefore the rotation of three factors is considered as having met our criterion.

Thus the results presented in Table 7 are considered to be the most meaningful description of the factor structure of the CIE instrument for the obtained data. Factor 1 corresponds to the Actor factor, Factor 2 fits the Interactor factor, but Factor 3 only weakly represents the Director factor. Factor 3 is labelled instead as the Text-test factor because it lacks strong loadings on managerial items like Policies, Organization, and Grading. The three-factor solution accounts for about 81% of the total variance.

It was noted that the Overall Course and Overall Instructor Items are both embedded in Factor 1. An attempt was made to separate these two global items by incrementally rotating factors until they demonstrated their highest factor loadings in different factors. This procedure was fruitless; even with the maximum number of 18 factors rotated, these two items loaded heaviest on the same factor. This factor also showed the largest loadings for Presentation, Command of Material, and Answer Questions for the 18-factor rotation solution. The global items seem to be inextricably bound to each other and to the Actor factor for the CIE. This can probably be explained by the fact that most courses are taught primarily by lecturing and thus the standard for evaluation has become the well-presented discourse.

Another factor analysis was performed, omitting the items of Overall Course and Overall Instructor. The same steps were followed as for the first analysis and the results are shown parenthetically in Tables 5, 6, 7 and 8. These results reveal

patterns of rotated factor loadings identical to those of the initial analysis. The 16 remaining items loaded highest on the same factors as before, and about 80% of the total variance was accounted for.

Discussion

Although the present results indicate that the global rating of the instructor is definitely higher than the overall rating of the course, the strong relationship exhibited between these measures discounts any notion of a definitive statement concerning their relative validity.

Student ratings of specific aspects of a course and instructor on the CIE are not independent of each other, nor are they independent of the global impressions of that course and instructor. The halo effect, as defined, is so strong for the CIE that the specific item ratings may have little diagnostic value in assessing a teacher's strengths and weaknesses and, ultimately, low potential for improving teaching.

The factor structure of the CIE provides clues as to the reasons for the instrument's shortcomings. It is only by relaxing the statistical criterion for factor rotation that the CIE yields anything but a unifactor solution. By using a practical, rather than a statistical, criterion, the instrument shows a traditional separation of instructional functions into the actor and interactor roles and a text-test factor which seems to be focussed on course content.

It may be that the high homogeneity of the CIE items provides an inadequate basis for the evaluation of courses and instructors because the instrument concentrates on a particular instructional model to the exclusion of others (see Halstead, 1970). Feldhusen and McDaniel (1972) pointed out that emerging new roles for the instructor may emphasize managerial and tutorial skills rather than the traditional role of a performer. If so, course and instructor evaluation will require new approaches and new instruments.

Other recent developments concerning student evaluation of courses and instructors include a shift of attention from the course-instructor complex to the student's estimate of self-development as a result of the course (Hoyt, 1969; Hartley & Hogan, 1972), and the implementation of a person-perception approach to teacher rating within a human information processing model (Widlak and Quereshi, 1972).

There is little doubt that students' ratings can yield reliable, valid, and useful information about the quality of courses and instruction (Costin, Greenough, & Menges, 1971). New conceptualizations of the problem will help us understand the processes as well as the products of student evaluation.

Three factors were found to underlie the CIE: Actor, Interactor, and Text-test. The overall course rating was found to be virtually inseparable from the overall instructor

rating. The generally strong direct relationships among specific rating items and between specific items and global items implies a strong halo effect evoked by the CIE. This instrument was found to be a weak prospect for the effective diagnosis of courses and instructors.

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Table 1

Results of Representative Factor-analytic Studies of Course-Instructor Evaluation Instruments classified into Instructor Role-categories. (Studies are arranged in chronological order. Factors are numbered in decreasing order of percent of total variance accounted for within each study.)

Investigator(s) and Date of Publication	Role Category: Actor (Communicator) (Monolog)	Interactor (Reciprocator) (Dialog)	Director (Administrator) (Pedagog)
Smalzried & Remmers (1943)	2. Professional Maturity	1. Empathy.	
Creager (1950)	2. Professional Impression.	1. Rapport.	
Bendig (1954)	1. Instructional Competence. 3. Halo.	2. Instructor Empathy.	
Gibb (1955)	2. Communication Behavior.	1. Friendly Democratic Behavior.	3. Organization Behavior. 4. Academic Emphasis.
Ryans (1960)	3. Z_o :Stimulating, Imaginative, & Enthusiastic vs. Dull, Routine, & Uninteresting.	1. X_o :Friendly, Understanding, & Sympathetic vs. Aloof, Egocentric, & Restricted.	2. Y_o :Responsible, Business-like, & Systematic vs. Evading, Slipshod, & Unplanned.
Leftwich & Remmers (1962)	3. Teacher Personality Characteristics. 4. Knowledge of Teaching Techniques. 5. Professional Impression.	1. Rapport. 2. Informal Teaching Approach.	
Veldman & Peck (1963)	2. Knowledgeable & Poised. 3. Lively & Interesting.	1. Friendly & Cheerful. 5. Nondirective.	4. Firm control.

Investigator(s) and Date of Publication	Role Category: Actor (Communicator) (Monolog)	Interactor (Reciprocator) (Dialog)	Director (Administrator) (Pedagog)
Isaacson, McKeachie, Milnolland, Lin, Hofeller, Baerwaldt, & Zinn (1964)	1. Skill.	4. Feedback. 5. Interaction. 6. Rapport.	2. Overload. 3. Structure.
Kerlinger (1967)	3. Creative Thinking.	1. Positive Person Orientation.	2. Responsibility Orientation.
Van Horn (1968)	1. General. 3. Intellectual Characteristics.	2. Participation.	4. Class Organization. 5. Content Organization.
Yonge & Sassenratn (1968)	1. Confident, Fluent Delivery. 4. Interesting, Stimulating Teaching. 8. Interest in & Knowledge of Subject Matter. 9. Preparedness of Lectures.	3. Open, Sympathetic Attitude toward Students.	2. Clarity of Course. 5. Fairness of Evaluation. 6. Suitable Class Material & Value of the Course. 7. Frequency of Evaluation.
Berger & Cohen (1969)	1. Instructor Involvement.	2. Student Interest. 3. Student-Faculty Interaction.	4. Course Demands. 5. Course Organization.
Caffrey (1969)	1. Teaching Ability (Skill).	2. Feedback to Students. 3. Negative Attitudes.	4. Overload. 5. Structure.
Deshpande, Webb, & Marks (1970)	1. Motivation. 4. Clarity. 5. Content Mastery. 8. Use of Teaching Aids. 9. Instructional Skill.	2. Rapport. 11. Encouragement. 12. Individual Assistance. 13. Interaction.	3. Structure. 6. Overload. 7. Evaluation Function. 10. Teaching Styles. 14. Text-Adherence.

Investigator(s) and Date of Publication	Role Category Actor (Communicator) (Monolog)	Interactor (Reciprocator) (Dialog)	Director (Administrator) (Pedagog)
Muller & Stranoberg (1970)	1. General Evaluation.	2. Discussion.	
Rubenstein & Mitechell (1970)	1. Instructor.	2. Student Involvement.	3. Establishment.
Hartley & Hogan (1972) (Scale I)	1. Overall Evaluation.	2. Student-Teacher Interaction.	3. Load (Difficulty). 4. Structure (Organization).
Kennedy (1972)	1. Instructional Methods. 3. Content Competency.	2. Interpersonal Relationships with Students.	
Magoon & Price (1972)	1. Instructor Impact.	3. Creativity.	2. Course Difficulty. 4. Course Structure.
McKeachie (1972)	1. Teaching Skills.	3. Group Interaction. 4. Feedback.	2. Structure. 5. Achievement Standards.
Widlak & Quereshi (1972)	2. Personal Appearance, Conduct & Scholarship. 4. Clarity of Communication.	1. Rapport. 5. Ability to Motivate Students.	3. Instructional Skill & Organization.
Frey & Mathis (1973)	1. Teacher's Presentation.	4. Teacher Accesibility.	2. Course Difficulty. 3. Grading Procedure.

Table 2

Sample Items of first three Teacher Description Instrument Factors (From Table 2 of Deshpande, Webb, and Marks, 1970).

A. Motivation.
   1. Encouraged students to think for themselves.
   2. Tried to increase interest of class in subject.
   3. Tried to get you to see beyond the limits of the course.
   4. Presented problems as a challenge to the class.
   5. Seemed bored with teaching. (-)
   6. Just re-hashed the text. (-)

B. Rapport.
   1. He was courteous and considerate.
   2. He was friendly.
   3. Encouraged students to ask questions.
   4. Welcomed different viewpoints.
   5. His actions made students feel afraid of him. (-)
   6. Talked down to students. (-)
   7. Declined to help students on problems. (-)

C. Structure.
   1. Presentations were logically arranged.
   2. Planned activities of each class period in detail.
   3. Everything went according to schedule.
   4. Seemed to work without a plan. (-)
   5. Spent time on unimportant and irrelevant materials. (-)

Table 3

Means and Standard Deviations of CIE Item Scores (N = 208)

Item	Mean	Std. Dev.
1. Text	4.21	.66
2. Policies	4.67	.52
3. Organization	4.59	.52
4. Presentation	4.68	.64
5. Chance to Question	5.21	.47
6. Command of Material	5.27	.46
7. Answer Questions	4.99	.53
8. Methods	4.42	.56
9. Rapport	4.83	.56
10. Discussions	4.33	.57
11. Applications	4.85	.49
12. Outside Help	4.95	.48
13. Grading	4.51	.46
14. Lectures	4.43	.72
15. Stimulation	4.27	.56
16. Exams	4.45	.70
17. Overall Course	4.52	.55
18. Overall Instructor	4.83	.60

Table 4

Product-moment Correlations among CIE Item Scores (N = 206)

(Decimal points omitted)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Text	-																	
2. Policies	54																	
3. Organization	60	80	-															
4. Presentation	47	79	85	-														
5. Chance to Question	44	66	63	66	-													
6. Command of Material	49	67	76	80	64	-												
7. Answer Questions	48	70	78	86	69	92	-											
8. Methods	50	80	80	91	74	72	83	-										
9. Rapport	48	78	71	80	80	72	78	86	-									
10. Discussions	41	63	62	68	82	58	68	78	81	-								
11. Applications	49	66	70	72	71	68	74	79	75	74	-							
12. Outside Help	41	64	60	63	69	66	67	68	75	61	62	-						
13. Grading	53	83	75	74	68	70	71	78	79	64	68	74	-					
14. Lectures	40	64	72	78	51	64	70	73	64	55	63	53	62	-				
15. Stimulation	58	71	80	82	64	75	79	81	76	73	72	66	72	74	-			
16. Exams	40	57	55	52	50	50	49	56	54	54	49	44	61	38	50	-		
17. Overall Course	63	76	88	87	70	80	83	87	79	72	78	68	80	74	92	59	-	
18. Overall Instructor	51	82	84	95	71	81	89	93	88	73	77	68	80	77	85	54	88	-

All correlations significant at $p < .001$.

Table 5

Factor Loadings of First Five Principal Components for Analysis based on All CIE Items and for Analysis based on All Except Global CIE Items (in parentheses). (N = 208)

Component Number	1	2	3	4	5
Eigenvalue	12.89 (11.11)	.86 (.83)	.80 (.79)	.61 (.60)	.54 (.53)
Percent of Variance	71.60 (69.44)	4.80 (5.21)	4.47 (4.91)	3.37 (3.75)	2.99 (3.33)
Cumulative percent of Variance	71.60 (69.44)	76.40 (74.65)	80.87 (79.56)	84.24 (83.31)	87.23 (86.64)
1. Text	.60 (.60)	.17 (.24)	-.62 (.58)	.44 (-.47)	-.03 (-.05)
2. Policies	.86 (.86)	.01 (.05)	-.14 (-.16)	-.16 (.14)	.10 (.08)
3. Organization	.88 (.88)	.24 (.27)	-.12 (-.09)	-.05 (.05)	-.02 (-.04)
4. Presentation	.92 (.91)	.20 (.20)	.15 (.16)	-.12 (.12)	-.06 (.07)
5. Chance to Question	.80 (.82)	-.42 (-.41)	.07 (.05)	.17 (-.17)	-.03 (-.02)
6. Command of Material	.85 (.85)	.16 (.18)	.07 (.10)	.00 (.01)	.25 (.24)
7. Answer Questions	.90 (.89)	.13 (.14)	.17 (.18)	.01 (.00)	.10 (.09)
8. Methods	.93 (.93)	-.01 (-.01)	.11 (.10)	-.05 (.05)	-.12 (-.13)
9. Rapport	.90 (.91)	-.22 (-.22)	.11 (.09)	.04 (-.04)	.01 (.01)
10. Discussions	.81 (.82)	-.79 (-.39)	.11 (.09)	.11 (-.10)	-.29 (-.28)
11. Applications	.84 (.84)	-.12 (-.11)	.07 (.07)	.15 (-.14)	-.17 (-.18)
12. Outside Help	.77 (.76)	-.24 (-.21)	.06 (.06)	.09 (-.08)	.47 (.48)
13. Grading	.87 (.87)	-.10 (-.06)	-.15 (-.16)	-.12 (.11)	.23 (.23)
14. Lectures	.78 (.77)	.34 (.34)	.20 (.24)	-.08 (.10)	-.13 (-.16)
15. Stimulation	.89 (.89)	.15 (.16)	.01 (.04)	.11 (-.09)	-.10 (-.09)
16. Exams	.63 (.64)	-.25 (-.20)	-.44 (-.48)	-.51 (.49)	-.12 (-.11)
17. Overall Course	.94	.14	-.08	.04	-.06
18. Overall Instructor	.95	.11	.12	-.07	-.02

Table 6

Factor Loadings of Two Rotated Factors for Analysis based on All CIE Items and for Analysis based on All Except Global CIE Items (in parentheses) (N = 208)

Factor Number	1	2
Percent of Variance	42.36 (39.08)	34.04 (35.57)
Cumulative Percent of Variance	42.36 (39.08)	76.40 (74.65)
1. Text	.57 (.61)	-.27 (-.24)
2. Policies	.65 (.66)	-.56 (-.56)
3. Organization	.82 (.83)	-.40 (-.41)
4. Presentation	.82 (.80)	-.46 (-.48)
5. Chance to Question	.32 (.31)	-.85 (-.86)
6. Command of Material	.74 (.74)	-.44 (-.45)
7. Answer Questions	.76 (.74)	-.49 (-.51)
8. Methods	.70 (.67)	-.62 (-.64)
9. Rapport	.53 (.51)	-.77 (-.78)
10. Discussions	.35 (.32)	-.83 (-.84)
11. Applications	.55 (.53)	-.65 (-.66)
12. Outside Help	.42 (.42)	-.69 (-.69)
13. Grading	.58 (.59)	-.64 (-.64)
14. Lectures	.81 (.80)	-.26 (-.28)
15. Stimulation	.77 (.75)	-.48 (-.50)
16. Exams	.31 (.32)	-.60 (-.58)
17. Overall Course	.80	-.52
18. Overall Instructor	.79	-.55

Table 7

Factor Loadings of Three Rotated Factors for Analysis based on All CIE Items and for Analysis based on All Except Global CIM Items (in parentheses). (N = 208)

Factor Number	1	2	3
Percent of Variance	37.53 (34.30)	28.30 (29.56)	15.04 (15.70)
Cumulative Percent of Variance	37.53 (34.30)	65.83 (63.86)	80.87 (79.56)
1. Text	.31 (.32)	-.10 (-.10)	-.82 (-.80)
2. Policies	.56 (.55)	-.47 (-.47)	-.47 (-.50)
3. Organization	.73 (.72)	-.31 (-.32)	-.48 (-.48)
4. Presentation	.82 (.80)	-.42 (-.44)	-.24 (-.26)
5. Chance to Question	.33 (.32)	-.82 (-.82)	-.22 (-.23)
6. Command of Material	.72 (.76)	-.40 (-.40)	-.28 (-.29)
7. Answer Questions	.77 (.76)	-.46 (-.47)	-.21 (-.22)
8. Methods	.69 (.66)	-.58 (-.59)	-.27 (-.29)
9. Rapport	.53 (.51)	-.73 (-.74)	-.24 (-.26)
10. Discussions	.36 (.34)	-.81 (-.82)	-.19 (-.20)
11. Applications	.53 (.53)	-.61 (-.62)	-.26 (-.26)
12. Outside Help	.42 (.42)	-.66 (-.65)	-.23 (-.23)
13. Grading	.49 (.48)	-.56 (-.56)	-.48 (-.49)
14. Lectures	.83 (.83)	-.23 (-.25)	-.15 (-.15)
15. Stimulation	.72 (.71)	-.41 (-.43)	-.36 (-.35)
16. Exams	.13 (.11)	-.48 (-.48)	-.64 (-.66)
17. Overall Course	.72	-.44	-.45
18. Overall Instructor	.78	-.50	-.28

Table 8

Factor Loadings of Four Rotated Factors for Analysis based on All CIE Items and for Analysis based on All Except Global CIE Items (in parentheses). (N = 208)

Factor Number	1	2	3	4
Percent of Variance	37.07 (33.85)	26.91 (28.44)	9.26 (9.43)	10.99 (11.59)
Cumulative Percent of Variance	37.07 (33.85)	63.98 (62.29)	73.24 (71.72)	84.23 (83.31)
1. Text	.25 (.25)	-.21 (-.21)	-.91 (-.92)	-.17 (.17)
2. Policies	.58 (.57)	-.40 (-.41)	-.25 (-.28)	-.47 (.47)
3. Organization	.73 (.73)	-.29 (-.30)	-.36 (-.35)	-.33 (.33)
4. Presentation	.83 (.81)	-.39 (-.41)	-.12 (-.13)	-.25 (.26)
5. Chance to Question	.30 (.28)	-.84 (-.84)	-.18 (-.17)	-.21 (.21)
6. Command of Material	.71 (.72)	-.40 (-.40)	-.22 (-.22)	-.20 (.20)
7. Answer Questions	.76 (.75)	-.47 (-.48)	-.17 (-.17)	-.16 (.16)
8. Methods	.69 (.66)	-.56 (-.57)	-.15 (-.16)	-.28 (.29)
9. Rapport	.52 (.50)	-.72 (-.73)	-.14 (-.16)	-.26 (.26)
10. Discussions	.34 (.32)	-.81 (-.82)	-.12 (-.11)	-.22 (.23)
11. Applications	.50 (.49)	-.64 (-.65)	-.25 (-.24)	-.16 (.16)
12. Outside Help	.40 (.40)	-.66 (-.66)	-.17 (-.16)	-.21 (.21)
13. Grading	.51 (.50)	-.49 (-.50)	-.26 (-.26)	-.48 (.48)
14. Lectures	.83 (.84)	-.24 (-.25)	-.10 (-.09)	-.11 (.12)
15. Stimulation	.70 (.69)	-.45 (-.46)	-.34 (-.32)	-.17 (.18)
16. Exams	.22 (.21)	-.26 (-.27)	-.14 (-.13)	-.88 (.88)
17. Overall Course	.71	-.44	-.37	-.28
18. Overall Instructor	.78	-.48	-.16	-.26